

**Remarks**

Reconsideration and allowance of the subject patent application are respectfully requested.

An amendment of a formal nature has been made to claim 35.

Applicant respectfully traverses the rejection of claims 26-30, 32, 34 and 61 under 35 U.S.C. Section 102(e) as allegedly being anticipated by Tayebati et al. (U.S. Patent No. 6,438,149).

As described in the subject application, in a non-limiting, illustrative tunable cavity resonator as, for example, shown in Figures 4a and 4b, the cavity length  $d$  can be adjusted by deforming the membrane 17 under the electrostatic force created by application of a potential  $V$  across the reflector electrodes. See, e.g., page 19, lines 13-21 of the subject patent application. In addition, the membrane 17 is designed such that it can be electrostatically displaced over large distance using low voltages. To achieve this, the intrinsic tensile stress in the membrane 57 is increased during its formation so as to be compensated by the compressive stress in, for example, the sacrificial layer 55 so that the resultant stress in the finally released membrane 57 is controlled such that it is close to zero or sufficiently low. See, e.g. page 21, line 1 - page 22, line 12 of the subject patent application.

As a result, the membrane 17 in the illustrative tunable cavity resonator is of sufficiently low stress so that the membrane can be electrostatically displaced over relatively large distances using low voltages. See, e.g., page 22, lines 5 - 12 of the subject patent application. Further, due to such arrangements, the resultant stress in the released membrane tends to be balanced between tensile and compressive stresses, thus providing a uniform and flat membrane in suspension. See, e.g., page 19, lines 25-31 of the subject patent application.

Tayebati et al. fails to disclose or teach at least the following feature of independent claims 26 and 61:

wherein the intrinsic stress of the membrane is an intrinsic tensile stress adapted to be compensated by a compressive stress applied thereto such that the resultant stress in the membrane is substantially zero or sufficiently low to permit said electrostatic displacement.

The office action alleges that the above feature is disclosed by Tayebati et al. at column 6, line 56 to column 7, line 25. Applicant respectfully disagrees. Indeed, in contrast to claims 26 and 61, Tayebati et al. discloses a tunable filter with a confocal cavity as, for example, shown in Figure 1. In particular, Tayebati et al. discloses that strain is introduced into the reflectors 12 and the membrane 7 so as to achieve a desired curvature as shown in Figure 1. See, e.g., Tayebati et al., col. 6, line 60 to col. 7, line 25. Accordingly, instead of having a membrane such that the resultant stress is substantially zero or sufficiently low as recited in claim 26, Tayebati et al. directly teaches away from this by disclosing that the resultant membrane (upon the removal of the sacrificial layer) is stressed so as to form a curvature.

Therefore, Tayebati et al. fails to disclose or teach the above-identified feature recited in independent claims 26 and 61 and thus Tayebati et al. cannot anticipate these claims or the claims depending therefrom.

The office action grouped independent claim 32 together with independent claims 26 and 61 and rejected claim 32 for the same reasons as these other independent claims. However, claim 32 recites the feature "wherein said substrate is formed from an infrared sensitive material", which is not recited in claims 26 and 61. This feature was not rejected in the previous office action and is not addressed in the present office action. Consequently, the office action fails to state a prima facie basis for the rejection of claim 32 and Applicant respectfully submits that the rejection of claim 32 and its dependent claim 33 based on Tayebati et al. must be withdrawn.

Lipson et al. (U.S. Patent No. 6,567,209) and Carey et al. (U.S. Patent No. 6,277,696) are applied in connection with dependent claims 31 and 33, respectively. Among other things, these references do not remedy the deficiencies of Tayebati et al. noted above with respect to claims 26 and 32, from which claims 31 and 33 depend, respectively. For at least these reasons, claims 31 and 33 patentably distinguish over the proposed combinations of references.

With respect to claim 35, the office action simply cites case law in support of the obviousness rejection. Applicant respectfully submits that the cited case law is inapposite here. Moreover, even assuming some legally sufficient basis could be identified for having the reflective layers of Tayebati et al. function as the electrodes, Tayebati et al. would still be deficient with respect to claim 26, from which claim 35 depends.

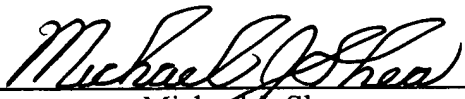
Applicant has added new dependent claims 62 and 63 which recite that "the membrane is substantially flat when suspended and not deformed due to electrostatic forces." Support for such feature can be found in at least page 19, lines 22 to 31 of the subject patent application. Inasmuch as the membrane 37 in Tayebati is specifically designed to be curved due to strain as for example shown in Figure 1, Applicant respectfully submits that claims 62 and 63 patentably distinguish from Tayebati et al.

Reconsideration and favorable office action are respectfully requested.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:

  
Michael J. Shea  
Reg. No. 34,725

MJS:mjs  
901 North Glebe Road, 11th Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100